

**Method for loading a fibrous stock suspension
and arrangement to accomplish said method.**

Patent Claims

1. Method for loading a fibrous stock suspension containing chemical pulp fibers with calcium carbonate, comprising the following process steps:
 - Adding calcium hydroxide in liquid or dry form, or calcium oxide into the fibrous stock suspension,
 - Adding gaseous carbon dioxide into the fibrous stock suspension,
 - Precipitation of calcium carbonate through the carbon dioxide and
 - Refining of the fibrous stock suspension during the fiber loading process.
2. Method according to claim 1,
characterized in that
a refining force in the range of between 0.1 and 300 kWh per ton of dry paper pulp is applied, whereby the loading process and the refining process are accomplished in a disperger (42).
3. Method in accordance with claim 1 or 2,
characterised in that
aqueous fibrous stock material, especially aqueous paper stock having a consistency of 0.1 to 20%, preferably between 2 and 6% is used as primary raw material.
4. Method in accordance with one of the claims 1 through 3,
characterized in that

the calcium hydroxide is mixed into the aqueous fiber stock material, especially into the paper fiber stock, whereby this has a solids content of between 0.01 and 60%.

5. Method in accordance with claim 4

characterized in that

the calcium hydroxide is added through a static mixer (16) or through an intermediate vat.

6. Method in accordance with one of the claims 1 through 5,

characterized in that

the carbon dioxide is mixed into a moist fibrous stock suspension.

7. Method in accordance with one of the claims 1 through 6,

characterized in that

a refiner (80), a disperger (42) and/or a fluffer FLPCC reactor are utilized as a reactor and/or a static mixer, whereby the fibrous stock content, especially the paper content is between 0.01 and 15% in the instance of a static mixer; at between 2 and 40% in the instance of a refiner (80) and a disperger (42) and between 15 and 60% in the instance of a fluffer-FLPCC-reactor.

8. Method in accordance with one of the claims 1 through 7,

characterized in that

the dilution water is supplied prior to, during or after the addition of carbon dioxide or calcium hydroxide or calcium oxide.

9. Method in accordance with one of the claims 1 through 8

characterized in that

an expenditure of energy of between 0.3 and 8 kWh/t, especially between 0.5 and 4 kWh/t is used.

10. Method in accordance with one of the claims 1 through 9,

characterized in that

the process temperature is provided between -15 °C and 120 °C, especially between 20 and 90 °C.

11. Method in accordance with one of the claims 1 through 10,

characterized in that

rhombohedral, scalenohedron and spherical crystals are produced.

12. Method in accordance with claim 11,

characterized in that

the crystals measure between 0.05 and 5 µm, especially between 0.3 and 2.5 µm.

13. Method in accordance with one of the claims 1 through 12,

characterized in that

static and/or moving, especially rotating mixing elements (68) are utilized.

14. Method in accordance with one of the claims 1 through 13,

characterized in that

it is carried out in a pressure range of between 0 and 15 bar, especially between 0 and 6 bar.

15. Method in accordance with one of the claims 1 through 14,
characterized in that
it is carried out at a ph value of between 6 and 10, especially between 6.5 and 9.5.
16. Method in accordance with one of the claims 1 through 15,
characterized in that
the reaction time is between 0.01 and 1 minute, especially between 0.05 and 10 seconds.
17. Arrangement to execute a method in accordance with one of the claims 1 through 16.
18. Apparatus to execute a method in accordance with one of the claims 1 through 17,
characterized in that
it comprises a static mixer (16) mixing calcium hydroxide into a fibrous stock suspension and a disperger (42) and/or a refiner for refining and/or fluffing of the fibrous stock suspension and to precipitate the calcium hydroxide in a carbon dioxide atmosphere while creating fibers that are loaded with calcium carbonate in the fibrous stock suspension